

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Currently Amended) An active pixel sensor array sampling system comprising:

a video circuit that generates a video voltage from each pixel in a row of pixels;

a reference circuit that generates a respective unique reference voltage associated with each pixel in the row of pixels;

wherein:

the video circuit comprises a plurality of video amplifiers, each video amplifier is associated with a respective pixel in the row of pixels, each video amplifier includes a single capacitor having a terminal switched between a respective column input and an output of the video amplifier, and the video amplifiers sample in series, one at a time, a ~~the~~ video voltage from each pixel in the row of pixels; and

the reference circuit comprises a single reference amplifier associated with all of the pixels in the row of pixels, the single reference amplifier separately samples in series, one at a time, the respective unique reference voltage for each pixel in the row of pixels, as each pixel in the row of pixels is sampled by a respective one of the video amplifiers; and

a differential amplifier receives both, the video voltage and the respective unique reference voltage, sampled in series, from each pixel in the row of pixels, and provides, in series, a corresponding differential voltage output.
2. (Original) The system of claim 1 wherein each of the video amplifiers is associated with all of the pixels in a respective column of pixels.
3. (Previously Presented) The system of claim 1 wherein the differential amplifier generates a differential voltage responsive to the video voltage and the respective unique reference voltage associated with each pixel in the row of pixels.
4. (Previously Presented) The system of claim 3 wherein the single reference amplifier has an output continuously coupled to the differential amplifier during reading of the video voltage of each of the video amplifiers.

5. (Currently Amended) An active pixel sensor array sampling circuit that samples a voltage on each one of a plurality of pixels, the circuit comprising:

a plurality of video circuits, each video circuit generating a video voltage related to a the voltage on a respective one of the pixels as ~~the~~the respective one of the pixels is sampled, each video circuit including a video amplifier having a single capacitor with a terminal switched between a respective column input and an output of the video amplifier; and

a reference circuit that separately samples a respective unique reference voltage as each pixel in the plurality of pixels is sampled by the video circuits,

wherein the pixels are arranged in columns and rows, the reference circuit is associated with all of the pixels of each row of pixels, and the reference circuit samples the respective unique reference voltage as each video voltage of each pixel in a row of pixels is sampled; and

a differential amplifier receives both, the video voltage and the respective unique reference voltage, sampled in series, from each pixel in the row of pixels, and provides, in series, a corresponding differential voltage output.

6. (Canceled)

7. (Previously Presented) The circuit of claim 5 wherein the differential amplifier provides the differential voltage output representing a difference between each sampled video voltage and a corresponding, sampled respective unique reference voltage.

8. (Previously Presented) The circuit system of claim 7 wherein the reference circuit includes a reference amplifier that has an output continuously coupled to the differential amplifier during the sampling of the video voltages for each row of pixels.

9. (Original) The circuit of claim 8 wherein each video amplifier is associated with all of the pixels of a respective column of pixels.

10. (Previously Presented) An integrated circuit including an active pixel sensor array sampling system comprising:

a plurality of video circuits, each video circuit sampling a video voltage from a respective pixel in a row of pixels;

a reference circuit that separately samples a respective unique reference voltage for each pixel in a row of pixels, as each video voltage is sampled by a respective one of the video circuits; and

a differential amplifier that receives both, the video voltage and the respective unique reference voltage, sampled in series, from each pixel in the row of pixels, and that provides, in series, a corresponding differential voltage output,

wherein each video circuit includes a video amplifier having a single capacitor with a terminal switched between a respective column input and an output of the video amplifier.

11. (Previously Presented) The integrated circuit of claim 10 wherein the differential amplifier generates a differential voltage responsive to each read video voltage and its respective sampled unique reference voltage.

12. (Original) The integrated circuit of claim 11 wherein the pixels are arranged in columns and rows and wherein each video circuit is associated with all of the pixels of a respective column of pixels.

13. (Currently Amended) A method of sampling a group of active pixels comprising:

sampling a voltage on each pixel in a row of pixels to generate a video voltage for each pixel in the row of pixels;

serially sampling, by a video amplifier, ~~each~~the video voltage;

sampling a unique reference voltage, respectively, for each pixel in the row of pixels as each respective video voltage is sampled;

receiving, by a differential amplifier, both the video voltage and the respective unique reference voltage, sampled in series, from each pixel in the row of pixels; and

providing, in series, a corresponding differential voltage output,

wherein the serial sampling of the video voltage by the video amplifier includes switching a terminal of a single capacitor between a respective column input and an output of the video amplifier.

14. (Previously Presented) The method of claim 13 comprising the further step of generating the differential voltage output from each sampled video voltage and its associated sampled unique reference voltage.

15.-16. (Canceled)